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10/532,117	04/21/2005	Ulrich Hochberg	2923-702	4269

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EXAMINER	
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ART UNIT	PAPER NUMBER
1797	

NOTIFICATION DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PTO-PAT-Email@rfem.com

Office Action Summary	Application No.	Applicant(s)	
	10/532,117	HOCHBERG ET AL.	
	Examiner	Art Unit	
	DANIELLE HENKEL	1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 April 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *8/7/2007, 7/21/2006, 7/1/2005, 4/21/2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Summary

1. This is the initial Office action on the 10/532117 application filed on 4/21/2005.

2. Claims 1-21 are pending and have been fully considered.

Information Disclosure Statement

3. The information disclosure statement filed 8/07/2007 fails to comply with 37 CFR 1.98(a)(3) because it does not include a concise explanation of the relevance, as it is presently understood by the individual designated in 37 CFR 1.56(c) most knowledgeable about the content of the information, of each document listed that is not in the English language, specifically "Tekhologija spirta", the information referred to therein has not been considered.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 1 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over MULLER (US 4287304).

a. With respect to claim 1, MULLER teaches an apparatus for producing alcohol from plant raw materials comprising a fermentation station (Column 3, lines 28-34), a distillation station (Column 6, lines 20-25), and a drying station for vinasse (Column 6, lines 35-38). MULLER also teaches a grinding station (mill) which separates at least a part of the seed coat portions (hulls) (Column 4, lines 18-26) and a liquefaction station (hydrolysis) (Column 4, lines 32-34). MULLER also teaches the dry wastes of the milling station can fed to the liquid wastes of the alcohol production to provide an animal feed (Column 5, lines 33-37) and that liquid wastes are subjected to a drying operation to be used as animal feed (Column 6, lines 35-38). Therefore it would be obvious to one of ordinary skill in

the art at the time of the invention to subject both sources of waste (i.e. seed coats and vinasse) to the drying station to create the animal feed.

b. With respect to claim 3, MULLER teaches a grinding station that grinds cereals to flour (Column 3, lines 28-34), but does not explicitly disclose grinding the flour to a mean particle size between 0.5 and 1 mm. It would have been obvious to one of ordinary skill in the art at the time of the invention to chose the disclosed particle size, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller,* 105 USPQ 233.

8. Claims 2, 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over MULLER (US 4287304), in view of DENNIS (US 3443958).

a. With respect to claim 2, MULLER does not explicitly disclose the grinding station separates off the seed coat portions in a ratio of seed coats to flour. However, DENNIS teaches a grinding station (mill) in which there is flexibility in the amount of hulls that are eliminated prior to mashing (Column 2, lines 1-6). At the time of the invention it would have been obvious to one of ordinary skill in the art to modify the grinding station of MULLER to include the separation of seed coat portions in a ratio as taught by DENNIS because the seed coat portions (husks) contain components that are responsible for the sharpness or tanginess of the beer and using different ratios of the husks allows for control over the final flavor (Column 1, line 66-Column 2, line 5). DENNIS discloses the control of

separating off the seed coat portions in a ratio, but does not explicitly disclose a weight ratio of seed coats to flour of 1 to 9 – 2 to 8. It would have been obvious to one of ordinary skill in the art at the time of the invention to chose the disclosed weight ratios, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

b. With respect to claim 4, MULLER does not explicitly teach the grinding station has a roller or impact jet mill. However DENNIS teaches a grinding station which can be either a rolling mill or impact mill (Column 2, lines 29-30). At the time of the invention it would have been obvious to one of ordinary skill in the art to modify the grinding station of MULLER to include the roller mill or impact mill as taught by DENNIS because these are ordinary mills used to grind cereals finely that have a more successful operation when the seed coats are removed (Column 2, lines 20-30).

9. Claims 5-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over MULLER (US 4287304), in view of REICH (US 2343706).

a. With respect to claim 5, MULLER teaches a liquefaction station (hydrolysis) (Column 4, lines 35-36) which has a mixing condenser admixing steam to the product stream of the raw material, at least one mixing stage comprising mixing condenser, a steam-jet injector and admixing superheated steam to the product stream (Column 4, lines 40-54). MULLER does not explicitly

disclose an expansion cooler comprising at least one expansion stage. However, REICH teaches an apparatus for producing alcohol in which the liquefaction station includes a mixing condenser admixing steam to the product and an expansion cooler (flash cooler) comprising at least one expansion stage in which expansion vapor of the cooler is admixed to the product (Column 4, lines 42-70). At the time of the invention it would have been obvious to one of ordinary skill in the art to modify the liquefaction station of MULLER to include the expansion cooler as taught by REICH because it allows for cooling the product stream (wort) to the appropriate temperature for fermentation (Column 1, lines 20-22) and the recycling of steam from the cooler to inject in the heating stage resulting in a more efficient process (Column 3, lines 3-11).

b. With respect to claim 6, REICH teaches that the expansion cooler is of multistage construction (series of stages) and the product stream is admixed to at least the expansion vapor of the first stage of the cooler (Column 3, lines 3-20).

c. With respect to claim 7, REICH teaches the expansion cooler has a two stage (series of stages) construction and the mixing condenser (cooker) is of single-stage construction (Column 3, lines 12-20).

d. With respect to claim 8, REICH teaches that the mixing condenser (pre-cooker) heats the product stream to a temperature below the gelatinization temperature of the raw material and the steam-jet injector heats the product

stream to a temperature above the gelatinization temperature of the raw material (Column 4, lines 30-60).

10. Claims 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over MULLER (US 4287304) in view of PRENTICE (US 4328317).

a. With respect to claim 9, MULLER does not explicitly disclose a degassing station between the fermentation and distillation stations. However, PRENTICE teaches an alcohol production apparatus with a vertically standing degassing conduit or tube between the fermentation and distillation stations (Column 9, lines 58-64). At the time of the invention it would have been obvious to one of ordinary skill in the art to modify the alcohol production apparatus of MULLER to include the degassing section as taught by PRENTICE because it is necessary to draw off the carbon dioxide by product of fermentation in order to favor the reactions (Column 5, lines 51-58).

b. With respect to claim 10, PRENTICE teaches the mash is preheated under pressure and heat (heat exchanger) to allow for degassing (Column 10, lines 40-55).

11. Claims 11-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over MULLER (US 4287304), in view of DAHLSTROM (US 4309254).

a. With respect to claim 11, MULLER teaches the drying station comprises a drier which carries out the final drying of the vinasse (Column 6, lines 35-38).

MULLER does not explicitly disclose the drying dew point temperature above 95 degrees and preferably between 100 and 105 degrees Celsius. It would have been obvious to one of ordinary skill in the art at the time of the invention to dry at the disclosed temperatures, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233 MULLER also does not disclose the distillation column heated by the exhaust vapor of the drier. However, DAHLSTROM teaches an alcohol recovery process wherein the vapor recovered from the dryer proceeds to the distillation column (Column 5, lines 7-8). At the time of the invention it would have been obvious to one of ordinary skill in the art to modify the alcohol producing apparatus of MULLER to include the exhaust vapor of the drier heating the distillation column as taught by DAHLSTROM because it allows for a 25% savings in steam consumption due to the recycling of the exhaust vapor (Column 2, lines 49-53).

b. With respect to claim 12, DAHLSTROM teaches the drier produces essentially air-free exhaust vapor (live steam, reboil steam) (Column 5, lines 11-14).

c. With respect to claim 13, DAHLSTROM teaches the drier is constructed as a superheated steam drier (Column 4, lines 66-67).

d. With respect to claim 14, MULLER does not explicitly disclose the distillation station has a first and second column and a dehydration station. However, DAHLSTROM teaches the distillation station has a first distillation

column which is heated by exhaust vapor of the drying station (Column 5, lines 7-8) to which is connected a dehydration station (evaporator) (Column 2, lines 18-20). DAHLSTROM also teaches a second distillation column is connected at an intermediate level of the first column (Figure 1, Column 4, lines 30-33) and is heated via a heat exchanger by heat from the dehydration station (Column 4, lines 30-35). At the time of the invention it would have been obvious to one of ordinary skill in the art to modify the alcohol production apparatus of MULLER to include the distillation and dehydration station arrangement as taught by DAHLSTOM because it reduces the overall energy required to produce alcohol by recycling the steam in the system and reducing the cooling water needed in the distillation section because the cooling duties are recovered during dehydration (Column 5, lines 16-43).

e. With respect to claim 15, DAHLSTROM teaches the heat exchanger is a falling film evaporator heated by the dehydration station (Column 3, lines 28-30).

12. Claims 16-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over MULLER (US 4287304), in view of DAHLSTROM (US 4309254) as applied to claims 11-15 above, and further in view of GINDER (US 4407662).

a. With respect to claim 16, neither MULLER nor DAHLSTROM explicitly disclose the dehydration station comprises a molecular sieve. However, GINDER teaches the dehydration of alcohol comprising a molecular sieve (Column 2, lines 22-45). At the time of the invention it would have been obvious to one of ordinary

skill in the art to modify the dehydration station of MULLER and DAHLSTROM to include the molecular sieve as taught by GINDER because it provides a practical and efficient low energy process for concentrating alcohol (Column 1, lines 65-67).

b. With respect to claim 17, GINDER teaches the molecular sieve is operated at a pressure of 1.7 bar absolute or more (2-10 psig) (Column 3, lines 18-19).

13. Claims 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over MULLER (US 4287304), in view of DAHLSTROM (US 4309254), and in view of STOLTENBURG (US 3968739).

a. With respect to claim 18, MULLER does not explicitly disclose the distillation station is connected to a dehydration station. However, DAHLSTROM teaches the distillation station has a first distillation column which is connected to a dehydration station (evaporator) (Column 2, lines 18-20). DAHLSTROM also teaches heat from the dehydration station can be directed to multiple portions of the system to provide recycled heat, which could include a vinasse evaporator (Column 4, lines 30-35). At the time of the invention it would have been obvious to one of ordinary skill in the art to modify the alcohol production apparatus of MULLER to include the distillation and dehydration station arrangement as taught by DAHLSTOM because it reduces the overall energy required to produce alcohol by recycling the steam in the system and reducing the cooling water

needed in the distillation section because the cooling duties are recovered during dehydration (Column 5, lines 16-43). Neither MULLER nor DAHLSTROM teaches the drying station comprises a separator. However, STOLTENBURG teaches a vinasse processing apparatus in which comprises a separator (decanter) which separates the vinasse solids and vinasse thin juice (clear phase) (Column 3, lines 51-64), and an evaporator (vaporizer) that evaporates the vinasse thin juice to form vinasse thick juice (Column 4, lines 10-13), and a drier which dries the vinasse thick juice and solids together (Column 4, lines 42-50). At the time of the invention it would have been obvious to one of ordinary skill in the art to modify the alcohol producing apparatus of MULLER and DAHLSTROM to include the vinasse processing apparatus as taught by STOLTENBURG because it provides a continual and economic means of drying vinasse without the use of excess energy (Column 1, lines 40-53).

b. With respect to claim 19, STOLTENBURG teaches the evaporator comprises a pre-evaporator and a final evaporator (multiple phases down fall vaporizer) (Column 4, lines 10-12). DAHLSTROM also teaches heat from the dehydration station can be directed to multiple portions of the system to provide recycled heat, which could include a vinasse final evaporator (Column 4, lines 30-35).

14. Claims 20-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over MULLER (US 4287304), in view of DAHLSTROM (US 4309254), in view of

STOLTENBURG (US 3968739) as applied to claims 18-19 above and further in view of GINDER (US 4407662).

a. With respect to claim 20, neither MULLER nor DAHLSTROM nor STOLTENBURG explicitly disclose the dehydration station comprises a molecular sieve. However, GINDER teaches the dehydration of alcohol comprising a molecular sieve (Column 2, lines 22-45). At the time of the invention it would have been obvious to one of ordinary skill in the art to modify the dehydration station of MULLER, DAHLSTROM, and STOLTENBURG to include the molecular sieve as taught by GINDER because it provides a practical and efficient low energy process for concentrating alcohol (Column 1, lines 65-67).

b. With respect to claim 21, GINDER teaches the molecular sieve is operated at a pressure of 1.7 bar absolute or more (2-10 psig) (Column 3, lines 18-19).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DANIELLE HENKEL whose telephone number is (571)270-5505. The examiner can normally be reached on Mon-Thur: 7:30am-5pm, Alternate Fridays: 7:30am-4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden can be reached on 571-272-1267. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/William H. Beisner/
Primary Examiner, Art Unit 1797

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